

California Regional Water Quality Control Board
Santa Ana Region

July 19, 2002

ITEM: 12

SUBJECT: Coastal Water Quality and Beach Closures

INTRODUCTION

This item is an update of the September 26, 2001 report (Attachment A) to the Board regarding beach water closures in Orange County.

New criteria for microbial testing of coastal waters and for closure of beach waters to body contact recreation went into effect in 1999. Since 1999, there have been a number of beach postings (warnings) and closures (access prohibited) in Orange County due to microbial contamination, most notably along Huntington Beach. In response to the coastal microbial contamination problems, a number of steps have been taken to address the issue. These include: (a) studies to investigate suspected sources (urban runoff, sanitary sewer lines, public restrooms, coastal marshes, etc.); (b) studies to investigate permitted and unpermitted discharges to the ocean (power plant discharges, Orange County Sanitation District's (OCSD) ocean outfall, etc.); (c) diversion of urban runoff; (d) adoption of General Waste Discharge Requirements for Sewage Collection Agencies; and (e) repair of leaking sewers/restrooms.

These actions have resulted in a significant improvement in coastal water quality, and a commensurate reduction in exceedances of bacterial standards along Huntington Beach. Between April and October 1999, there were 151 exceedances of standards for enterococci bacteria along Huntington Beach. From April to October 2001, there were 65 exceedances of these same standards, for a 57% decrease in the number of exceedances of bacterial standards. (Figure 1, (OCSD, 2002)). This is consistent with the Governor's goal to reduce the number of beach closures and postings by at least 50%, as compared to the summer of 1999.

It appears that the major cause of water quality improvement is the diversions of urban runoff to the sewer system (Figure 1). Staff is continuing to work towards further reductions in beach water closures by identifying additional sources and by controlling them.

Staff has also been working with several groups investigating water quality along Huntington Beach to determine the cause of the beach water pollution and some of these groups have completed their investigations. Overall, the evidence

appears to show that the major cause of the beach water microbial contamination along the Orange County coastal zone is urban runoff.

SOURCES

To date, studies have indicated that beach water closures and postings cannot be linked to any single source. Sewage spills are the leading cause of beach water closures in Orange County. From 1999 to 2001, 94 of the closures were due to sewage spills. In 2001, all of the 16 beach closures were due to sewage spills. Another frequently cited cause of water quality impairment of ocean waters is contaminated urban runoff. Leaking sewer lines, OCSD's ocean outfall in Huntington Beach, the AES power plant discharges in Huntington Beach, and some of the wetlands and the wildlife associated with them are all potential sources of pathogenic contamination of ocean waters.

SOURCE INVESTIGATIONS

OCSD has completed an extensive investigation of its offshore discharge. In general, the investigators found that the bacterial pollution along the shore at Huntington Beach is most likely from land-based sources and not from offshore discharge of treated wastewater by OCSD. These findings are confirmed by additional investigations conducted on shore by University of California, Irvine, researchers and others, that indicate the majority of the bacterial pollution found along Huntington Beach probably comes from the discharges from Talbert Marsh and the Santa Ana River.

In April 2002, the Orange County Health Care Agency (OCHCA) closed a 2000 foot section of Huntington State Beach, by the State Parks Headquarters Building at the end of Magnolia Street. The closure was due to exceedances of the bacteriological standards that appeared to be caused by raw sewage. Staff worked with OCSD and State Parks to investigate the restroom pipelines at the facility and found that none were leaking.

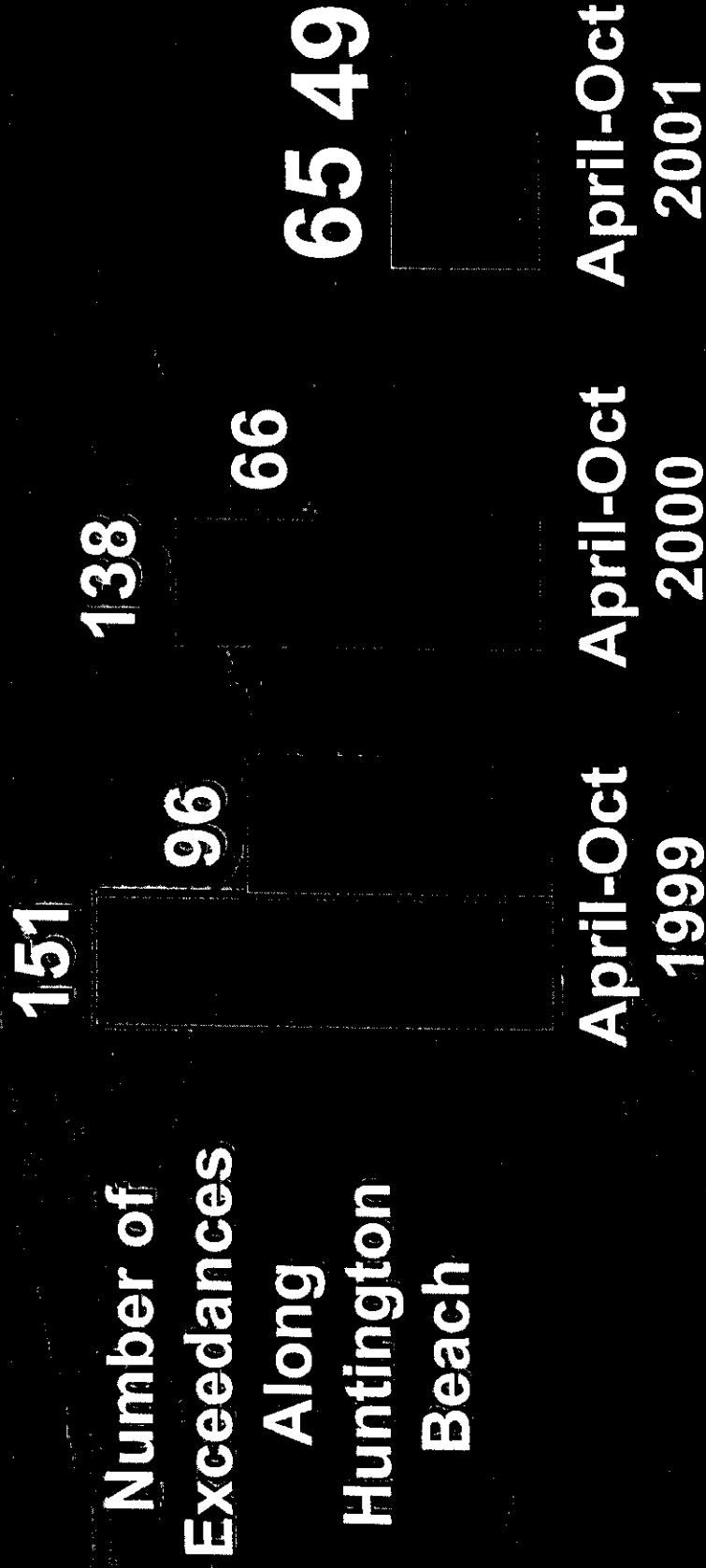
BEACH CLOSURES AND POSTINGS

The majority of beach water closures and postings in the Region are still occurring at beach areas in Newport Bay and Huntington Harbour. Urban runoff discharges and sewage spills into the Bay and Harbour are the cause of these closures and postings. It is anticipated that once all the sewerage agencies in Orange County implement the provisions of the General Waste Discharge Requirements, there will be a significant reduction in sewage spills, beach postings and beach closures.

PROPOSED ACTIONS

Board staff is proposing to continue to take all necessary steps to minimize beach closures in Orange County. These actions include implementation and enforcement of the General Waste Discharge Requirements recently adopted by the Board for the sewage collection agencies in Orange County, which require better maintenance and operations of sewage collection systems to prevent the discharge of sewage to surface water bodies. Staff is also working with the storm water permittees in Orange County to address the urban runoff discharges that are causing violations of bacterial standards. In addition, staff has proposed amendment of OCSD's permit (see Item 13) to require chlorination of the effluent, which would reduce the risk of bacterial pollution of ocean waters due to OCSD's discharge.

Urban Runoff Diversions Are Working!



☐ Enterococci ☐ Fecal Coliform

California Regional Water Quality Control Board
Santa Ana Region

September 26, 2001

ITEM: 20

SUBJECT: Update on Activities Related to Beach Water Closures and Sewage
Spills in Orange County

INTRODUCTION

Orange County has some of the most valuable beaches in the country, not only because of the large number of visitors, but also because of the revenue these visitors generate for the local businesses and the municipalities. From Seal Beach to San Clemente, there are approximately 42 miles of coastal beaches and a total of 124 miles of coastal and bay beaches. This translates to 45,260 available beach mile days per year (beach mile days=miles of beach X number of days). Approximately 60% of the beach mile days in Orange County are within the Santa Ana Region, with the remainder in the San Diego Region.

New requirements (AB 411) for frequent testing of surfzone waters and imposing stringent criteria for beach water closures went into effect in 1999. Since 1999, there have been a total of 146.8 beach mile days (approximately 0.3%) of beach water postings (warning) and closures (access prohibited) in Orange County. Approximately 50% of these closures and postings occurred at beaches in this region. Recent news articles in leading Orange County and Los Angeles County newspapers and news releases from environmental organizations indicated that the increases in beach water closures compared to prior years are largely due to increased frequency of monitoring and stringent criteria for beach water closures required under AB 411. However, there is an impact on the beneficial uses of the waters of the Region that must be addressed expeditiously.

CRITERIA FOR BEACH WATER CLOSURES

Most beach water closures are triggered by sewage spills and most beach water postings are triggered by monitoring results that indicate high bacteria levels (pathogen indicators) in the ocean/bay waters. AB 411 requires beach water closures if there is any evidence of sewage. AB 411 requires beach water postings and/or closures if objectives for total coliform (instantaneous maximum 10,000 or geometric mean 1,000), fecal coliform (400 or 200), or enterococcus (103 or 35) are exceeded. In Orange County, the County Health Care Agency monitors the ocean waters for pathogenic organisms. If sewage spills occur, the County takes a more conservative approach and closes the beach if there is a potential for the spill to reach ocean/bay waters. In addition, areas close to the

Beach Closures and Sewage Spills

storm drain outlets are posted, warning the public that the water may be contaminated.

SOURCES

To date, studies have indicated that beach water closures and postings cannot be linked to any single source. Sewage spills are the leading cause of beach water closures in Orange County. From 1999 to 2001, 94 of the closures were due to sewage spills. In 2001, all of the 16 beach closures were due to sewage spills. Of these 16 sewage spills, 9 were from private properties and 7 from publicly owned sewer lines. Another frequently cited cause of water quality impairment of ocean waters is contaminated urban runoff. Leaking sewer lines, the ocean outfall for the treated sewage in Huntington Beach, the AES power plant discharges in Huntington Beach, and some of the wetlands and the wildlife associated with them are all potential sources of pathogenic contamination of ocean waters.

SOURCE INVESTIGATIONS

The 1999 Huntington Beach closures resulted in intensified efforts to identify the sources of pathogenic (microbial) contamination. The Orange County Sanitation District (OCSD) conducted an intensive survey of its sewer lines. The Executive Officer directed the County and the coastal cities, under Section 13267 of the Water Code, to conduct an investigation to identify and remediate the sources of microbial contamination. The County in cooperation with the cities, OCSD, and the National Water Research Institute (NWRI) conducted a study of the causes of bacterial contamination in beach water (study done by the University of California at Irvine (UCI)). The Executive Officer issued a Cleanup and Abatement Order to the City of Huntington Beach requiring the City to investigate its sewer systems.

The OCSD, UCI (Phase 2 Report), and City of Huntington Beach studies failed to identify the source(s) of the microbial contamination. The UCI study indicated that the Talbert Marsh might be contributing to the microbial problem in the nearshore zone. OCSD also conducted a study of its ocean discharge on beach closures and elevated levels of microbial contamination. No link could be established between the OCSD ocean discharge and the elevated microbial levels in Huntington Beach. The AES power plant discharge has elevated bacterial levels. However, studies of this discharge indicate that it is not likely to impact the nearshore zone of Huntington Beach.

Board staff requested and got approval for \$200,000 from the State Water Resources Control Board for Cleanup and Abatement Account funds to partly support a study of the Lower Santa Ana River and Newport Slough to determine the amount of bacterial pollution from these two sources. The County, OCSD, the coastal cities, and NWRI have also contributed to this study. The Phase 2

Beach Closures and Sewage Spills

study looked at contributions to the microbial problem in Huntington Beach from nuisance and urban runoff, the natural environment (wildlife, wetlands, etc.), leaking sewer lines, ocean outfalls and tidal input. All of these studies indicate that a number of sources are causing or contributing to the elevated microbial counts in the surfzone in Orange County.

PROPOSED ACTIONS

Board staff is proposing to take all necessary steps to minimize beach closures in Orange County. As indicated above, a number of steps have already been taken including a Cleanup and Abatement Order, and orders under Water Code Section 13267. The majority of beach closures are attributable to sewage spills from private property owners and publicly owned sewer lines. Most of these spills are due to lack of maintenance and/or proper controls. To address these problems, staff is proposing the following actions.

Staff is proposing to regulate all sewerage agencies in the Orange County area by developing general waste discharge requirements. This order would require the permittees to survey their systems, replace or repair them on an as needed basis, develop a regular maintenance schedule, and commit adequate resources for equipment and manpower for quick response to spills. A recent audit of selected municipalities in Orange County indicates that the municipal programs for sewer system operation and maintenance and response to spills vary widely. Staff is proposing to have the general waste discharge requirements developed for Board consideration at the October meeting.

The Orange County municipal separate storm sewer system (MS4) permit is currently being renewed. Requirements have been included to address bacterial contamination problems resulting from urban runoff, including diversion of dry weather flows (already being implemented), requirements for best management practices to eliminate the sources of bacterial contamination in urban runoff, and a requirement to investigate and remediate any infiltration into MS4 systems from leaking sanitary sewer lines.

This is an extremely difficult problem to tackle due to the diverse, and sometimes unknown, sources. A significant amount of resources (money and personnel) are being dedicated to addressing the microbial contamination problems in the surfzone in Orange County. Staff anticipates that with the coordinated efforts of all the stakeholders, beach closures in Orange County can be minimized.